IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An optical dispersion measurement apparatus comprising:

means for generating a light beam;

means for inputting the generated light beam to a first terminal of an optical distributor;

means for outputting the input light beam as a plurality of light beams;

optical modulation means for modulating at least two of the plurality of light beams;

an optical path via which the at least two modulated light beams are returned to the optical distributor and the at least two modulated light beams propagate in opposite directions along said optical path;

means for outputting the at least two modulated light beams returned to the optical distributor from a second terminal of the optical distributor;

means for detecting a time-averaged intensity of light output from the second terminal; and

means for ~~relating an intensity of the detected light to an optical modulation frequency~~ obtaining a dependency between the detected time-averaged intensity and an optical modulation frequency applied by said optical modulation means.

Claim 2 (Currently Amended): An optical dispersion measurement apparatus comprising:

means for generating a light beam;

means for inputting the generated light beam to a first terminal of an optical distributor;

means for outputting the input light from a third terminal and a fourth terminal of the optical distributor;

light modulation means for modulating light traveling from the third terminal to the fourth terminal and light traveling from the fourth terminal to the third terminal;

means for outputting from a second terminal of the optical distributor modulated light traveling from the third terminal to the fourth terminal and from the fourth terminal to the third terminal;

means for detecting a time-averaged intensity of the light output from the second terminal; and

means for ~~relating an intensity of the detected light to an optical modulation frequency~~ obtaining a dependency between the detected time-averaged intensity and an optical modulation frequency applied by said light modulation means.

Claim 3 (Withdrawn): An optical dispersion measurement apparatus comprising:

means for generating a light beam;

means for inputting the generated light beam to a first terminal of an optical distributor;

means for converting the light beam input to the first terminal of the optical distributor into two component beams having an orthogonal polarization relationship;

means for modulating one component beam before the beam is passed through a measurement object and modulating the other component beam after it has passed through the measurement object;

means for returning the two modulated component beams to the optical distributor;

means for outputting the two modulated component beams from a second terminal of the optical distributor;

means for detecting light having a predetermined polarization output from the second terminal; and

means for relating an intensity of the detected light to an optical modulation frequency.

Claim 4 (Currently Amended): The apparatus according to claim 1, ~~wherein said means for generating a light beam generates a~~ further comprising wavelength-tunable light ~~beam~~ beam-generating means for measuring said dependency for different wavelengths of a light beam generated.

Claim 5 (Currently Amended): The apparatus according to claim 2, ~~wherein said means for generating a light beam generates a~~ further comprising wavelength-tunable light ~~beam~~ beam-generating means for measuring said dependency for different wavelengths of a light beam generated.

Claim 6 (Withdrawn): The apparatus according to claim 3, wherein said means for generating a light beam generates a wavelength-tunable light beam.

Claim 7 (Withdrawn): The apparatus according to claim 1, that further includes means for adjusting a length of the optical path used to return light output from the optical distributor back to the optical distributor.

Claim 8 (Withdrawn): The apparatus according to claim 2, that further includes means for adjusting a length of an optical path used to return light output from the optical distributor back to the optical distributor.

Claim 9 (Withdrawn): The apparatus according to claim 3, that further includes means for adjusting a length of an optical path used to return light output from the optical distributor back to the optical distributor.

Claim 10 (Withdrawn): The apparatus according to claim 1, wherein the optical distributor has first to fourth terminals, and that further includes first polarization control means for adjustment of light traveling from the third terminal to the fourth terminal, and second polarization control means for adjustment of light traveling from the fourth terminal to the third terminal.

Claim 11 (Withdrawn): The apparatus according to claim 2, further including first polarization control means for adjustment of light traveling from the third terminal to the fourth terminal, and second polarization control means for adjustment of light traveling from the fourth terminal to the third terminal.

Claim 12 (Original): The apparatus according to claim 1, wherein a measurement object is located on part of the optical path.

Claim 13 (Original): The apparatus according to claim 2, wherein a measurement object is located on part of the optical path.

Claim 14 (Withdrawn): The apparatus according to claim 3, wherein the measurement object is located on part of the optical path.

Claim 15 (Original): The apparatus according to claim 1, wherein part of the optical path comprises optical reflection means.

Claim 16 (Original): The apparatus according to claim 2, wherein part of an optical path comprises optical reflection means.

Claim 17 (Withdrawn): The apparatus according to claim 3 wherein part of an optical path comprises optical reflection means.

Claim 18 (Withdrawn): The apparatus according to claim 12, that further includes optical reflection means disposed at the measurement object.

Claim 19 (Withdrawn): The apparatus according to claim 13, that further includes optical reflection means disposed at the measurement object.

Claim 20 (Withdrawn): The apparatus according to claim 14, that further includes optical reflection means disposed at the measurement object.

Claim 21 (Currently Amended): The apparatus according to claim 1, further ~~includes~~ comprising a half-wave plate provided on the optical path and a 90-degree Faraday rotator provided on the optical path configured to adjust a rotation of the half-wave plate, whereby an intensity of the light output from the second terminal of the optical distributor is increased when the light is not modulated compared to when the light is modulated, or is decreased when the light is not modulated compared to when the light is modulated.

Claim 22 (Currently Amended): The apparatus according to claim 2, further ~~includes~~ comprising an optical path, a half-wave plate provided on the optical path, and a 90-degree Faraday rotator provided on the optical path configured to adjust a rotation of the half-wave plate, whereby an intensity of the light output from the second terminal of the optical distributor is increased when the light is not modulated compared to when the light is modulated, or is decreased when the light is not modulated compared to when the light is modulated.

Claim 23 (Original): The apparatus according to claim 1, wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 24 (Original): The apparatus according to claim 2, wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 25 (Withdrawn): The apparatus according to claim 3, wherein said means for modulating the component beams includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 26 (Original): The apparatus according to claim 4, wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 27 (Original): The apparatus according to claim 5, wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 28 (Withdrawn): The apparatus according to claim 6, wherein said means for modulating the component beams includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 29 (Withdrawn): The apparatus according to claim 7, wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 30 (Withdrawn): The apparatus according to claim 8, wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 31 (Withdrawn): The apparatus according to claim 9, wherein said means for modulating the component beams includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 32 (Withdrawn): The apparatus according to claim 10, wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 33 (Withdrawn): The apparatus according to claim 11, wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 34 (Original): The apparatus according to claim 12, wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 35 (Original): The apparatus according to claim 13, wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 36 (Withdrawn): The apparatus according to claim 14, wherein said means for modulating the component beams includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 37 (Original): The apparatus according to claim 15, wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 38 (Original): The apparatus according to claim 16, wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 39 (Withdrawn): The apparatus according to claim 17, wherein said means for modulating the component beams includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 40 (Withdrawn): The apparatus according to claim 18, wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 41 (Withdrawn): The apparatus according to claim 19, wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 42 (Withdrawn): The apparatus according to claim 20, wherein said means for modulating the component beams includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 43 (Original): The apparatus according to claim 21, wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 44 (Original): The apparatus according to claim 22, wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 45 (Currently Amended): A method of measurement of optical dispersion, comprising ~~the steps of~~:

using light generation means to generate a light beam;

inputting the generated light beam to a first terminal of an optical distributor;

outputting the input light beam as a plurality of light beams;

modulating at least two of the plurality of light beams;

returning the at least two light beams to the optical distributor;

outputting the returned light beams from a second terminal of the optical distributor;

detecting a time-averaged intensity of the light beams output from said second terminal; and

~~relating an~~ obtaining a dependency between the detected time-averaged intensity ~~of the detected light to~~ and an optical modulation frequency applied during said modulating.

Claim 46 (Currently Amended): A method of measurement of optical dispersion, comprising ~~the steps of~~:

using light generation means to generate a light beam;

inputting the generated light beam to a first terminal of an optical distributor;

outputting the input light beam from third and fourth terminals of the optical distributor;

guiding the light beams output from the third and fourth terminals to a single optical path so that the beams travel along the optical path in mutually opposite directions;

modulating light traveling along the optical path from the third terminal to the fourth terminal and modulating light traveling along the optical path from the fourth terminal to the third terminal;

outputting to a second terminal of the optical distributor the modulated light traveling from the third terminal to the fourth terminal and the modulated light traveling from the fourth terminal to the third terminal;

detecting a time-averaged intensity of the light output from the second terminal;

obtaining a dependency between the detected time-averaged intensity and an optical modulation frequency applied during said modulating;

finding a periodicity in a relationship between [[an]] the optical modulation frequency and [[an]] said detected time-averaged ~~optical~~ intensity of the light output from the second terminal; and

obtaining a wavelength dispersion characteristic of the optical path from a dependency of the periodicity on a wavelength of the light input to the first terminal.

Claim 47 (Withdrawn): A method of measurement of optical dispersion, comprising the steps of:

using light generation means to generate a light beam;

inputting the generated light beam to a first terminal of an optical distributor;

converting the light beam input to the first terminal of the optical distributor into two component beams having an orthogonal polarization relationship;

modulating one of the component beams before the beam is passed through a measurement object and modulating the other component beam after it has been passed through the measurement object;

returning the two modulated component beams to the optical distributor;

outputting the two modulated component beams from a second terminal of the optical distributor;

detecting light having a predetermined polarization output from the second terminal; and

relating an intensity of the detected light to an optical modulation frequency.

Claim 48 (Currently Amendment): A method of measurement of optical dispersion, comprising ~~the steps of~~:

using light generation means to generate a light beam;

inputting the generated light beam to a first terminal of an optical distributor;

outputting the input light beam from third and fourth terminals of the optical distributor;

guiding the light beams output from the third and fourth terminals to a substantially single optical path so that the beams travel along the optical path in mutually opposite directions;

modulating light traveling along the optical path from the third terminal to the fourth terminal and modulating light traveling along the optical path from the fourth terminal to the third terminal, using a modulation signal having a periodic frequency that is not less than a periodicity found in an optical intensity relationship of light output from a second terminal of the optical distributor;

outputting from the second terminal of the optical distributor the modulated light traveling from the third terminal to the fourth terminal and the modulated light traveling from the fourth terminal to the third terminal;

detecting a time-averaged intensity of the light output from the second terminal;

finding a periodicity in a relationship between an optical modulation frequency and ~~an optical~~ the detected time-averaged intensity of the light output from the second terminal; and

using the periodicity to obtain a length of the optical path and changes in the length.

Claim 49 (Withdrawn): A method of measurement of optical dispersion, comprising the steps of:

using light generation means to generate a light beam;

inputting the generated light beam to a first terminal of an optical distributor;

converting the light beam input to the first terminal of the optical distributor into two component beams having an orthogonal polarization relationship;

modulating one of the component beams before the beam is passed through a measurement object, using a modulation signal having a periodic frequency that is not less than a periodicity found in an optical intensity relationship of light output from a second terminal of the optical distributor;

using another modulation signal having a same periodic frequency to modulate the other component beam after it has been passed through the measurement object;

returning the two modulated component beams to the optical distributor;

outputting the two modulated component beams from the second terminal of the optical distributor;

detecting light having a predetermined polarization output from the second terminal; and

relating an optical intensity of the detected light to an optical modulation frequency; and

using the relationship to find a length of the optical path and changes in the length.

Claim 50 (Currently Amended): An optical dispersion measurement apparatus comprising:

first means for generating monochromatic light;

second means for extracting two parts from said monochromatic light;

third means for directing the two parts of light onto a common optical path, incorporating an optical modulator and a device under test and traversing said optical modulator and said device on said common optical path in opposite directions;

fourth means for combining the two parts of light using said second means to obtain a combined light;

fifth means for detecting a time-averaged intensity of the combined light;

sixth means for ~~relating an average~~ obtaining a dependency between said detected time-averaged intensity of the ~~detected~~ combined light ~~with~~ and a modulation frequency of said optical modulator ~~to obtain a relationship~~; and

seventh means for acquiring from the ~~relationship~~ dependency an optical path length of said device or a variation of the optical path length.

Claim 51 (Currently Amended): An optical dispersion measurement apparatus comprising:

first means for generating monochromatic light;

second means for extracting two parts from said monochromatic light;

third means for directing the two parts of light onto a common optical path, incorporating an optical modulator and a device under test and traversing said optical modulator and said device on said common optical path in opposite directions;

fourth means for combining the two parts of light using said second means to obtain a combined light;

fifth means for detecting a time-averaged intensity of the combined light;

sixth means for ~~relating an average~~ obtaining a dependency between said detected time-averaged intensity of the ~~detected~~ combined light ~~with~~ and a modulation frequency of said optical modulator to obtain a relationship; and

seventh means for acquiring from a variation of the dependency according to a variation of ~~the relationship on~~ a wavelength of the generated monochromatic light a wavelength dispersion characteristic of said device.

Claim 52 (New): An optical dispersion measurement apparatus comprising:

means for generating a light beam;

means for inputting the generated light beam to a first terminal of an optical distributor;

means for outputting the input light beam as a plurality of light beams;

optical modulation means for modulating at least two of the plurality of light beams;

an optical path via which the at least two modulated light beams are returned to the optical distributor;

means for outputting the light beams returned to the optical distributor from a second terminal of the optical distributor;

means for detecting light output from the second terminal; and

means for relating an intensity of the detected light to an optical modulation frequency,

wherein part of the optical path comprises optical reflection means.

Claim 53 (New): An optical dispersion measurement apparatus comprising:

means for generating a light beam;

means for inputting the generated light beam to a first terminal of an optical distributor;

means for outputting the input light from a third terminal and a fourth terminal of the optical distributor;

light modulation means for modulating light traveling from the third terminal to the fourth terminal and light traveling from the fourth terminal to the third terminal;

means for outputting from a second terminal of the optical distributor modulated light traveling from the third terminal to the fourth terminal and from the fourth terminal to the third terminal;

means for detecting the light output from the second terminal; and

means for relating an intensity of the detected light to an optical modulation frequency,

wherein part of an optical path comprises optical reflection means.

Claim 54 (New): An optical dispersion measurement apparatus comprising:

means for generating a light beam;

means for inputting the generated light beam to a first terminal of an optical distributor;

means for outputting the input light beam as a plurality of light beams;

optical modulation means for modulating at least two of the plurality of light beams;

an optical path via which the at least two modulated light beams are returned to the optical distributor;

means for outputting the light beams returned to the optical distributor from a second terminal of the optical distributor;

means for detecting light output from the second terminal; and

means for relating an intensity of the detected light to an optical modulation frequency,

wherein said optical modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 55 (New): An optical dispersion measurement apparatus comprising:

means for generating a light beam;

means for inputting the generated light beam to a first terminal of an optical distributor;

means for outputting the input light from a third terminal and a fourth terminal of the optical distributor;

light modulation means for modulating light traveling from the third terminal to the fourth terminal and light traveling from the fourth terminal to the third terminal;

means for outputting from a second terminal of the optical distributor modulated light traveling from the third terminal to the fourth terminal and from the fourth terminal to the third terminal;

means for detecting the light output from the second terminal; and

means for relating an intensity of the detected light to an optical modulation frequency,

wherein said light modulation means includes at least one pair of optical modulators having mutually opposed forward modulation directions.

Claim 56 (New): An optical dispersion measurement apparatus comprising:

a light source configured to generate a light beam;

an optical distributor configured to distribute light into a plurality of light beams;

a first optical fiber configured to input the generated light beam to a first terminal of the optical distributor;

a modulation device configured to modulate at least two of the plurality of light beams;

an optical path via which the at least two modulated light beams are returned to the optical distributor and the at least two modulated light beams propagate in opposite directions along said optical path;

a second optical fiber configured to output the at least two modulated light beams returned to the optical distributor from a second terminal of the optical distributor;

a detector configured to detect a time-averaged intensity of light output from the second terminal; and

a calculator device configured to obtain a dependency between the detected time-averaged intensity and an optical modulation frequency applied by said optical modulation device.

Claim 57 (New): An optical dispersion measurement apparatus comprising:

a light source configured to generate a light beam;

an optical distributor configured to distribute light into a plurality of light beams to a third terminal and a fourth terminal of the optical distributor;

a first optical fiber configured to input the generated light beam to a first terminal of the optical distributor;

a light modulation device configured to modulate light traveling from the third terminal to the fourth terminal and light traveling from the fourth terminal to the third terminal of the optical distributor;

a second optical fiber configured to output from a second terminal of the optical distributor modulated light traveling from the third terminal to the fourth terminal and from the fourth terminal to the third terminal of the optical distributor;

a detector configured to detect a time-averaged intensity of the light output from the second terminal; and

a calculator device configured to obtain a dependency between the detected time-averaged intensity and an optical modulation frequency applied by said light modulation device.

Claim 58 (New): An optical dispersion measurement apparatus comprising:

a light source configured to generate monochromatic light;

an optical distributor configured to extract two parts from said monochromatic light, to direct the two parts of light onto a common optical path incorporating an optical modulator and a device under test and traversing said optical modulator and said device on said common optical path in opposite directions, and to combine the two parts of light to obtain a combined light;

a detector configured to detect a time-averaged intensity of the combined light;

a calculator device configured to obtain a dependency between said detected time-averaged intensity of the combined light and a modulation frequency of said optical modulator and to acquire from a variation of the dependency according to a variation of a wavelength of the generated monochromatic light a wavelength dispersion characteristic of said device under test.